NORTH DAKOTA
DEPARTMENT *of* HEALTH

Health Alert Network

FEBRUARY 8, 2008

HEALTH ADVISORY

Quinolone-Resistant *Neisseria meningitidis* Isolates, Minnesota and North Dakota: Chemoprophylaxis Recommendations

The Minnesota Department of Health and North Dakota Department of Health are recommending that ciprofloxacin or other quinolone antibiotics not be prescribed as chemoprophylaxis to contacts of patients with *Neisseria meningitidis* from northwestern Minnesota and eastern North Dakota, as described further below, until further notice. Rifampin, ceftriaxone, or azithromycin (500 mg for adults as a single dose orally) for chemoprophylaxis may be used.

Minnesota counties: Norman, Mahnomen, Clay, Becker, Wilkin, Otter Tail, Traverse, Grant, Douglas, Stevens, Pope, Kittson, Roseau, Lake of the Woods, Marshall, Pennington, Red Lake, Polk, Clearwater, Beltrami, Hubbard. North Dakota counties: Barnes, Cass, Cavalier, Grand Forks, Nelson, Pembina, Ramsey, Ransom, Richland, Sargent, Steele, Traill, and Walsh.

In January 2007 a child in a Fargo, North Dakota daycare center developed meningococcal meningitis. A *N. meningitidis* isolate from cerebrospinal fluid (CSF) was serogrouped as type B and was found to be quinolone-resistant (MICs of 0.25 mcg/ml for ciprofloxacin and levofloxacin, and >16 mcg/ml for nalidixic acid). This was the first case ever identified in the United States. Previously in August 2006, a young adult worker from the same daycare center had died of meningitis; the CSF culture was negative but polymerase chain reaction testing was positive for *N. meningitidis* serogroup B. Additional genetic test results were not indicative of ciprofloxacin resistance.

In early January 2008, a 53 year-old from Marshall County, Minnesota was admitted to a North Dakota hospital with meningitis and died within several hours. Blood and CSF cultures grew out *N. meningitidis* serogroup B; the isolate was quinolone-resistant (MICs of 0.25 mcg/ml for ciprofloxacin and levofloxacin, and MIC >16 mcg/ml for nalidixic acid). Molecular subtyping using pulsed-field gel electophoresis found that the isolates were indistinguishable.

In late January 2008, a 22 year-old college student from Clay County, Minnesota was admitted to a North Dakota hospital. A culture from CSF grew *N. meningitidis* serogroup B and the isolate was quinolone-resistant (MICs of 0.25 mcg/ml for ciprofloxacin and levofloxacin, and >16 mcg/ml for nalidixic acid). The isolate matched by multi-locus variable-number tandem repeat analysis (MLVA) to the other Minnesota case-isolate.

There were no secondary cases among the contacts of each of these cases that were provided chemoprophylaxis.

The Minnesota and North Dakota Departments of Health are asking clinicians to do the following:

- Describe the symptoms of meningococcal disease to close contacts of cases and evaluate symptomatic individuals promptly.
- Cases of prophylaxis failure should be reported to the Department of Health.

In addition to these new recommendations, The Department of Health reminds clinicians that:

- Cases of invasive meningococcal disease should be reported immediately to the Department of Health.
- Isolates from invasive disease should be submitted to the respective Department of Health Laboratory. If cultures are not available, blood or CSF samples should be submitted.
- Susceptibility testing of meningococcal isolates from cases of invasive disease is conducted at the Minnesota Department of Health or the North Dakota Department of Health laboratories.

If you have any questions regarding this, please call the Minnesota Department of Health at 877.676.5414 or the North Dakota Department of Health at 800.472.2180.

Categories of Health Alert messages:

- *Health Alert conveys the highest level of importance; warrants immediate action or attention.*
- *Health Advisory provides important information for a specific incident or situation; may not require immediate action.*
- *Health Update provides updated information regarding an incident or situation; no immediate action necessary.*
- *Health Information provides general information that is not necessarily considered to be of an emergent nature.*

This message is being sent to local public health units, clinics, hospitals, physicians, tribal health, North Dakota Nurses Association, North Dakota Long Term Care Association, North Dakota Healthcare Association, North Dakota Medical Association, North Dakota EMS Association and hospital public information officers.

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Schedule for Administering Chemoprophylaxis for Meningococcal Disease*

Drug	Age Group	Dosage	Duration	Administration
Rifampin[i]	Children aged < 1 month	5mg/kg every 12 hours	2 days	Oral
	Children aged ≥ 1 month	10 mg/kg every 12 hours	2 days	Oral
	Adults	600 mg every 12 hours	2 days	Oral
Ceftriaxone (Rocephin®)	Children aged < 15 years	125 mg	Single dose	IM[ii]
	Adolescents and adults ≥ 15 years	250 mg	Single dose	IM
Azithromycin[iii]	Children < 40 kg	10 mg/kg	Single Dose	Oral
	Children ≥ 40 kg and Adults	500 mg	Single Dose	Oral
Ciprofloxacin[iv]	Adults ≥ 18 years	500 mg	Single dose	Oral

*** Due to recent cases of cipro-resistant meningococcal serogroup B cases along the North Dakota/Minnesota border, the North Dakota Department of Health recommends that healthcare providers from the following counties: Barnes, Cass, Cavalier, Grand Forks, Nelson, Pembina, Ramsey, Ransom, Richland, Sargent, Steele, Traill, and Walsh discontinue the use of ciprofloxacin for chemoprophylaxis of contacts to meningococcal cases.**

Source: Centers for Disease Control and Prevention. Prevention and Control of Meningococcal Disease Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2005;54(No. RR-7):16.

Meningococcal Disease (invasive) is a mandatory reportable condition in North Dakota. All suspect and confirmed cases should be reported immediately to the North Dakota Department of Health at 701.328.2378 or toll-free at 800.472.2180.

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[i] Rifampin is not recommended for pregnant women because the drug is teratogenic in laboratory animals. Because the reliability of oral contraceptives may be affected by rifampin therapy, alternative contraceptive measures should be considered while rifampin is being administered.

[i] Intramuscular.

[i] One recent study has reported that a single 500-mg oral dose of azithromycin was effective in eradicating nasopharyngeal carriage of *N. meningitidis* (*146*). Azithromycin, in addition to being safe and easy to administer, is also available in a suspension form and is approved for use among children. Further evaluation is warranted of both the effectiveness of azithromycin in eradicating carriage of *N. meningitidis* and potential for development of microbial resistance to this drug if it is widely used for chemoprophylaxis.

[i] Ciprofloxacin is not generally recommended for persons < 18 years of age or for pregnant and lactating women because the drug causes cartilage damage in immature laboratory animals. However, ciprofloxacin can be used for chemoprophylaxis of children when no acceptable alternative therapy is available. Recent literature review identified no reports of irreversible cartilage toxicity or age-associated adverse events among children and adolescents (Source: Burstein GR, Berman SM, Blumer JL, Moran JS. Ciprofloxacin for the treatment of uncomplicated gonorrhea infection in adolescents: does the benefit outweigh the risk? *Clin Infect Dis* 2002;35:S191-9).